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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,954	03/05/2002	Fumihiko Kato	FPM-02901	6433
26339	7590	08/10/2005	EXAMINER	
PATENT GROUP CHOATE, HALL & STEWART LLP TWO INTERNATIONAL PLACE BOSTON, MA 02110			PIZIALI, JEFFREY J	
			ART UNIT	PAPER NUMBER
			2673	

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/090,954

**Applicant(s)**

KATO, FUMIHIKO

**Examiner**

Jeff Piziali

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7, 12 and 13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 12 and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Drawings*

2. The drawings were received on 18 May 2004 (Paper No. 5). These drawings are acceptable.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1 and 12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. Due to the amendment filed 18 May 2005, both independent claims 1 and 12 newly recite the limitation of the "output of said voltage generating block [being] selected by said voltage selecting block from said plurality of (n)  $\gamma$ -voltage levels and said plurality of (m)  $V_{com}$ -voltage levels according to a value of said voltage address signal," and the separate limitation of

the "voltage selecting block includ[ing] an impedance converter." However, no support for such subject matter exists anywhere in the instant application.

On the contrary, the specification teaches output [Fig. 3; 101 & 102] of the voltage generating block [Fig. 3; 20] being selected by the voltage selecting block [Fig. 4; 30 & 34] from the plurality of (n)  $\gamma$ -voltage levels [Figs. 3 & 4; Vb] and the plurality of (m) Vcom-voltage levels [Figs. 3 & 4; Vc] according to a value of the *polarity control signal* [Figs. 3 & 4; 106]. Specifically, the specification teaches, "a voltage generator block 20 for generating a plurality of (n)  $\gamma$ -voltages 101 and a plurality of (m) Vcom voltages 102 based on the voltage address signals 105, an impedance converter (or voltage selecting block) 30 for converting the impedances of the  $\gamma$ -voltages 101 and the Vcom voltages 102 and selecting some of the  $\gamma$ -correction voltages 103 and the Vcom-voltage signals 104 based on the polarity control signal 106" (see Page 2, Line 19 - Page 3, Line 1). Therefore, output of the voltage generating block has been disclosed as being selected by the voltage selecting block from the plurality of (n)  $\gamma$ -voltage levels and the plurality of (m) Vcom-voltage levels according to a value of the polarity control signal -- not the voltage address signal.

The specification further teaches the voltage selecting block [Fig. 4; 34] including an impedance converter [Fig. 4; 30] (see pages 11-13 of the specification) -- not the other way around (as presently claimed). The applicant has pointed to page 6, line 15 to page 7, line 7 and Figures 2 and 4 as support for the "voltage selecting block includ[ing] an impedance converter" (see Page 6 of the Amendment filed 18 May 2005). However, this paragraph merely discloses, "an impedance converter (or voltage selecting block) 30." So while the specification discloses *substituting* an "impedance converter" [Figs. 2 & 4; 30] for a "voltage selecting block," [Figs. 2

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& 4; 30]; there is found no explicit support for the claimed subject matter of a "voltage selecting block includ[ing] an impedance converter."

5. Claims 2-7 and 13 are further rejected under 35 U.S.C. 112, first paragraph due to their dependency upon rejected base claims 1 and 12.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3-7, 12, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Tamai et al. (US 6,160,533).

Regarding claim 1, Tamai discloses an LCD control unit for driving an LCD panel in an LCD device, the LCD control unit, comprising: a signal controller [Fig. 1; 39] for generating a voltage address signal [Fig. 4; LS] and a polarity control signal [Fig. 4; POLARITY INVERSION] (see Column 14, Line 27 - Column 15, Line 34); a voltage generator block [Fig. 4; 62] for generating a plurality of (n)  $\gamma$ -voltage levels [Fig. 4; at AS1-8] and a plurality of (m) Vcom-voltage levels [Fig. 1; Q]; a voltage selecting block [Fig. 4; 63] for selecting a specified number of the  $\gamma$ -voltage levels and one of the Vcom-voltage levels based on the polarity control signal to output the specified number of  $\gamma$ -correction voltages and a Vcom voltage, wherein output of the voltage generating block is selected by the voltage selecting block from the

plurality of (n)  $\gamma$ -voltage levels and the plurality of (m) Vcom-voltage levels according to a value of the voltage address signal, and wherein the voltage selecting block includes an impedance converter [Fig. 4; AS1-8], having at least one operational amplifier to receive the  $\gamma$ -voltage levels and the Vcom-voltage levels, to convert internal impedances of the  $\gamma$ -voltage levels and the Vcom-voltage levels and generate the specified number of the  $\gamma$ -correction voltages and the Vcom-voltage according to a value of the polarity signal; and an LCD driver [Fig. 1; 37] for generating a set of display data signals [Fig. 1; O1-ON] based on a set of external data signals [Fig. 1; D0-D2], wherein the LCD driver receives the specified number of the  $\gamma$ -correction voltages output from the voltage selecting block and includes a  $\gamma$ -correction section [Fig. 14; 37b] for correcting voltages of the display data signals based on the specified number of the  $\gamma$ -correction voltages (see Column 16, Line 14 - Column 17, Line 15 and Column 23, Lines 16-32).

Regarding claim 3, Tamai discloses the voltage generator block includes a resistor string [Fig. 4; 62] for generating n X L voltage levels, n first decoders [Fig. 14; DE1-DEN] for selecting [Fig. 14; ASW1-ASWN] the n  $\gamma$ -voltage levels [Fig. 14; 42a & 42b] from the n X L voltage levels based on the voltage address signal, and m second decoders [Fig. 15; DEi] for selecting the m Vcom-voltage levels [Fig. 15; 42] from the n X L voltage levels based on the voltage address signal, given number L being an integer (see Column 23, Line 16 - Column 24, Line 35).

Regarding claim 4, Tamai discloses the specified number of  $\gamma$ -correction voltages are a pair of  $\gamma$ -correction voltages [Figs. 7 & 14; 42a & 42b] (see Column 18, Lines 40-46).

Regarding claim 5, Tamai discloses the voltage selecting block alternately selects the pair of  $\gamma$ -correction voltages having a positive polarity and the pair of  $\gamma$ -correction voltages having a negative polarity, with respect to the Vcom voltage (see Column 16, Lines 48-63).

Regarding claim 6, Tamai discloses the voltage generator block includes a resistor string [Fig. 4; 62] for generating a plurality of voltage levels, a decoder [Fig. 14; DE1-DEN] for decoding the voltage address signal, and a selector [Fig. 14; ASW1-ASWN] for selecting one of the  $\gamma$ -voltage levels or one of the Vcom voltage levels (see Column 23, Line 16 - Column 24, Line 35).

Regarding claim 7, Tamai discloses the LCD control unit is a one-chip IC (see Column 5, Lines 24-41).

Regarding claim 12, this claim is rejected by the reasoning applied in the above rejection of claim 1; furthermore Tamai discloses the voltage selecting block [Fig. 4; 63] being coupled to the voltage generator block [Fig. 4; 62]; and wherein the display driver [Fig. 1; 37] receives the specified number of the  $\gamma$ -correction voltages [Fig. 4; at AS1-8] output from the impedance converter [Fig. 4; AS1-8] (see Column 16, Line 14 - Column 17, Line 15 and Column 23, Lines 16-32).

Regarding claim 13, Tamai discloses the  $\gamma$ -correction section [Fig. 14; 37b] generates a plurality of voltages based on the specified number of the  $\gamma$ -correction voltages [Fig. 4; at AS1-8], and the voltages of display data signals [Fig. 1; O1-ON] are selected from the plurality of voltages based on the set of external data signals [Fig. 1; D0-D2] (see Column 16, Line 14 - Column 17, Line 15 and Column 23, Lines 16-32).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamai et al. (US 6,160,533) in view of Gormish (US 5,910,796).

Regarding claim 2, Tamai does not expressly disclose the voltage address signal and the polarity control signal are generated based on a software as time series signals. However, Gormish discloses software controlling and setting gamma correction signals (see Column 1, Lines 12-46). Tamai and Gormish are analogous art because they are from the shared field of gamma correcting display devices. Therefore, it would have been obvious to one skilled in the art to substitute Gormish's software control in the place of Tamai's hardware control, so as to provide a convenient means of gamma correcting the display for the user.



***Response to Arguments***

10. Applicant's arguments filed 9 March 2005 have been fully considered but they are not persuasive. The Applicant contends the cited prior art of Tamai et al. (US 6,160,533) neglects teaching an impedance converter having at least one operational amplifier to receive  $\gamma$ -voltages and Vcom-voltages from the voltage selecting block and that functions to produce the  $\gamma$ -voltages and Vcom-voltages according to a value of a polarity signal (see Page 9 of the Amendment filed 18 May 2005). However, the examiner must respectfully disagree. Tamai explicitly discloses an impedance converter [Fig. 4; AS1-AS8 & AS11-AS14] having at least one operational amplifier [Fig. 4; 66] to receive  $\gamma$ -voltages [Fig. 4; R1-R7 output signals from 62] and Vcom-voltages [Fig. 4; Q-output signals from 61] from the voltage selecting block [Fig. 4; all inputs to 63] and that functions to produce the  $\gamma$ -voltages [Fig. 4; R1-R7 output signals from 62] and Vcom-voltages [Fig. 4; Q-output signals from 61] according to a value of a polarity signal [Fig. 4; POLARITY INVERSION] (see Column 16, Line 14 - Column 17, Line 15). By such reasoning, rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



J.P.  
8 August 2005



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